

## 植物研究雜誌

## THE JOURNAL OF JAPANESE BOTANY

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## Charophyta Japonica (II).

Hideo MORIOKA

森岡英男: 日本産車軸藻類(其二)

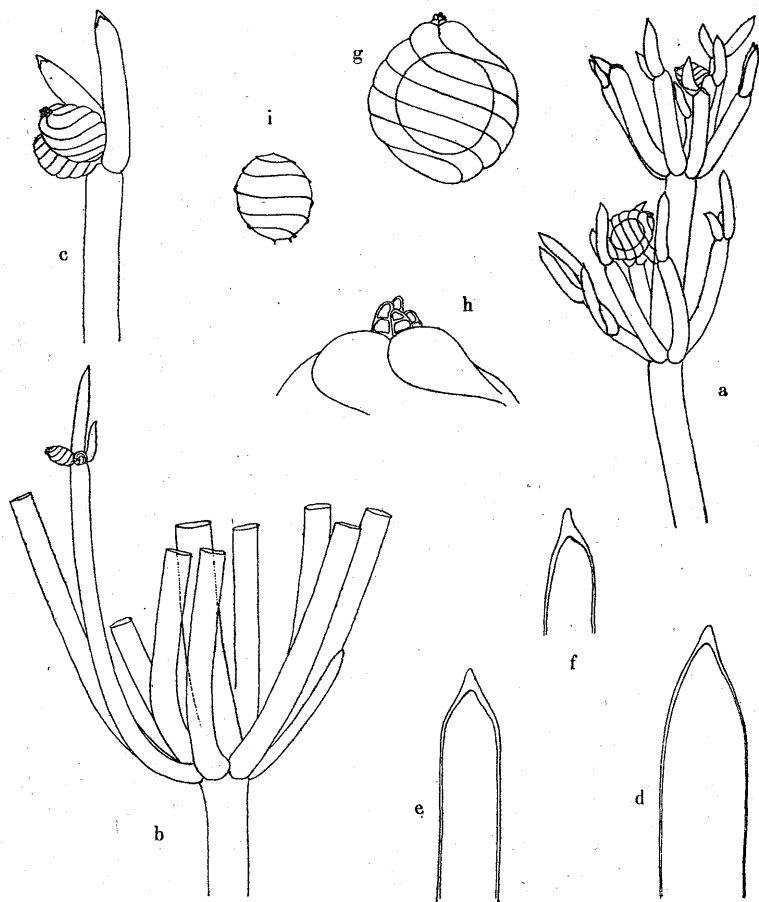
1) **Nitella flexilis** (L. ex p.) AGARDH, Syst. Alg., 124 (1824); KÜTZING, Phycol. gener., 318 (1843); Spec. Alg., 514 (1849); WALLMAN, Famil. d. Charac. 28 (1854); SYDOW, Europ. Charac., 17 (1882); A. BR. et NORDST., Fragmenta Monog. Charac., 34 (1882); SAIDA in Bot. Mag. Tôkyô I-1, 36 (1887); HAUCK in Hedwigia XXVII, 17 (1888); NORDST. in Alg. et Charac. 22 (1889); GROVES in Journ. Bot. IX, 166 (1880); X, 356 (1881); XII, 22 (1883); XIII, 5 (1884); XXV, 3 (1886); MIGULA in RABENH., Kryptog.-Fl. ed. 2, V, 132 (1891); Synop. Charac. Europ. 34 (1898); in MIGULA, Kryptog.-Fl. II-2, 272 (1909); in PASCHER, Süßwasser-Fl. Heft. 11, 216 (1925); HOLTZ in Kryptog.-Fl. Mark Brandenburg IV-1, 72 (1903); MAKINO in Journ. Japan. Bot. VI, 373 (1929); VERDAM in Blumea III-1, 9 (1938); SONDER, Charac. in Inaug.-Diss. 15 (1890).

*Chara flexilis* L., Sp. Pl. II, 1157 (1753); Fl. Suec. ed. 2, 428, no. 1134 (1755) et auct ex parte.

*Chara translucens minor flexilis* VAILLANT, Acta Acad. Gall. 1719 t. 3, f. 9.

*Chara caulium articulis inermibus diaphanis, superne latioribus* L. Fl. Suec. 363, no. 995 (1745).

Planta tenuis, ca. 40 cm longa, viridis ad atrovirens, interdum paulum in-crustata. Caulis 420-520 $\mu$  crassus; internodia quam ramuli 2-3-plo longiora. Verticilli fertiles quam steriles vulgo minores, interdum fere aequales, sed non in capitula congesti, in mucro non immersi. Ramuli verticillorum normaliter 6-7, 350-390 $\mu$  diametro, interdum cum ramulis accessoribus, semel furcati.

Fig. 1. *Nitella flexilis* (L.) AGARDH

a. Pars plantae, totus ramulus ( $\times 10$ ); b-c. Pars ramulorum cum oogoniis (b,  $\times 10$ ; c,  $\times 20$ ); d-f. Cellula ultima dactylorum ( $\times 50$ ); g. Oogonium ( $\times 25$ ); h. Coronula oogonii ( $\times 150$ ); i. Oospora ( $\times 25$ ).

Radii inferiores quam dactyli 2-4-plo longiores. Dactyli unicellulares, 2-3, plerumque aequilongi, apiculati. Antheridia terminalia. Oogonia ad antheridia lateralia,  $820-960\mu$  longa (coronula incl.),  $630-720\mu$  lata, cellulis spiralibus 6-7; coronula parva, delapsa, ca.  $50\mu$  alta, cellulae superiores et inferiores aequilongae. Oospora pallide brunnea, subglobosa,  $450-520\mu$  longa,  $400-420\mu$  lata, striis 5-6 prominentibus; membrana fere levis.

Nom. Jap. *Hime-hurasukomo*.

Hab. in Hondo. Prov. Simotuke; in lacu Tyûzenziko et Yunoko (S. YOSHIMURA, Aug. 26, 1939, herb. ips. n<sup>o</sup>. 28 et 29). Prov. Musasi: oppid. Toda (ex SAIDA in Bot. Mag. Tôkyô, I-1, 36, 1887). Prov. Bizen (ex MIGULA in Hedwigia LXX, 211, 1930).

Distr. Asia, Europa, America.

2) ***Nitella capitulifera*** ALLEN ex MAKINO in Journ. Jap. Bot. VI, 372 et 375 (1929) cum icon.

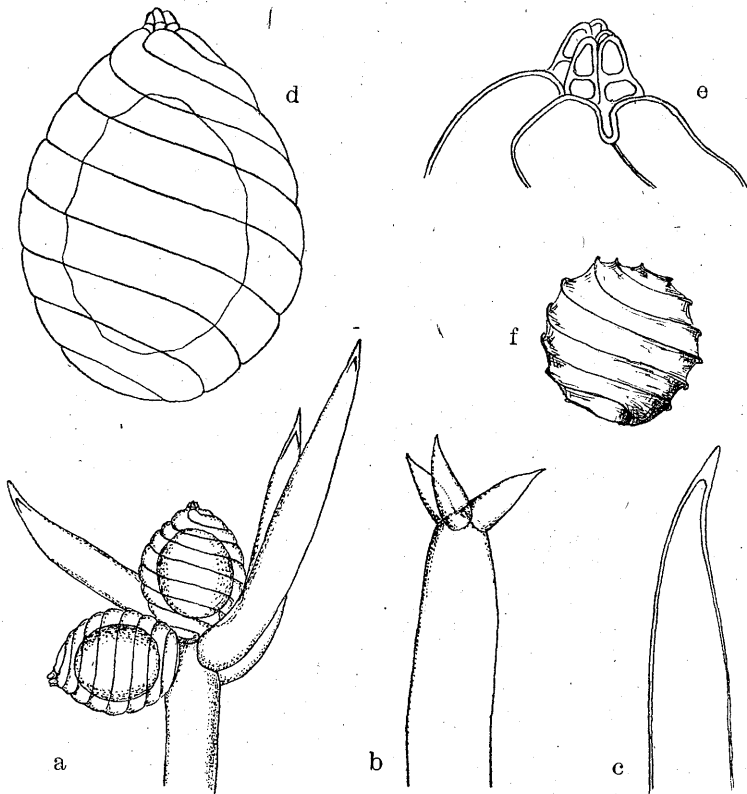


Fig. 2. *Nitella capitulifera* ALLEN

a. Pars ramulorum cum oögoniis ( $\times 35$ ); b. Segmenta ultima ramulorum ( $\times 20$ ); c. Cellula ultima dactylorum ( $\times 50$ ); d. Oögonium ( $\times 100$ ); e. Coronula oögonii ( $\times 200$ ); f. Oöspora ( $\times 70$ ).

Planta monoecia, viridis et pellucida, ca. 20–45 cm alta. Caulis robustus, 600–800 $\mu$  crassus; internodia quam ramuli longiora vel breviora, vulgo 3–8 cm longa, interdum ad 12 cm. Verticilli steriles majores, ramulis 6–8, patentibus, simpliciter furcatis, 480–630 $\mu$  diametro. Verticilli fertiles in capitulis dense congesti, 0.3–0.8 cm in diametro, ramulis brevissimis. Radii interiores ramulorum sterilium et fetilium quam superiores multo longiores; radii superiores (dactyli) 3–4 (rarissime 5), unicellulati, acuminati, saepe delapsi, breves, interdum abbreviati, sed raro longiores usque ad 1/3 totius longitudinis ramulorum.

Gametangia ad nodos ramulorum, in muco non immersa. Antheridia terminalia 280–330 $\mu$  diametro. Oogonia geminata vel solitaria, 480–540 $\mu$  longa, 380–400 $\mu$  lata; cellulae spirales 7–8-convolutae; coronula parva ca. 40 $\mu$  alta et basi ca. 55 $\mu$  lata, persistens. Oospora 300–340 $\mu$  longa, 250–290 $\mu$  lata, striis 6, paulum prominentibus; membrana oosporae brunnea ad nigra, levis.

Nom. Jap. *Tyabo-hurasukomo*.

Hab. in Hondo. Prov. Simousa: in lacu Inbanuma (Ego ipse, no. 50, 51, Oct. 15, 1939); in lacu Teganuma (Ego ipse, no. 65, Nov. 5, 1939).

Planta endemica.

### 3) **Nitella oligogyra** MORIOKA, sp. nov.

Planta monoecia, 5–10 cm longa, ramosa, claro-viridis. Caulis tenuis sed validus et rectus, 245–260 $\mu$  diametro; internodia quam ramuli 1–2-plo longiora. Verticilli fertiles quam steriles paulum breviores, plus minus congesti. Ramuli verticilli 6, recti et patentés, 1–3-plo furcati (ramuli steriles 1–2-plo furcati). Radii primarii ca. dimidio totius longitudinis ramulorum; radii secundarii 4, inaequales, quorum 2–3 plerumque simplici; tertii 2–4, quorum 1–(2) interdum in radios 2-quarternis furcati. Dactyli 2-cellulati, interdum plus minus abbreviati; cellula ultima parva, acuta.

Gametangia ad nodos omnes, saepe sejuncta, non in muco immersa. Antheridia 280–300 $\mu$  in diametro. Oogonia solitaria, 450–490 $\mu$  longa, 280–330 $\mu$  lata; cellulae spirales 5–6; coronula parva ca. 40 $\mu$  alta, cellulis ultimis paulum longioribus; oospora fulva, 230–250 $\mu$  longa, 160–180 $\mu$  lata, striis 5, membrana minutissime dense reticulata.

Cum antheridiis magnis, oosporis minimis, minus spiralibus ex aliis speciebus bene dignoscenda.

Hab. in pelvi vadosa sponte nascit (Ego ipse, no. 30, Sept. 25, 1939).

Planta endemica.



Fig. 3. *Nitella oligogyra* MORIOKA

a-b. Pars ramulorum cum oogoniis et antheridiis (a,  $\times 15$ ; b,  $\times 40$ );

c. Segmenta ultima ramulorum ( $\times 40$ ); d. Coronula oogonii ( $\times 160$ ).

4) ***Nitella moniliformis* MORIOKA, sp. nov.**

Planta monoecia ca. 5-15 cm longa, claro-viridis. Caulis potius robustus, 400-500 $\mu$  crassus; internodia quam ramuli 1-2-plo longiora. Ramuli verticillorum 6, plerumque 2-furcati, patentes. Verticilli steriles quam fertiles majores, remotiores; radii primarii elongati, quam dimidium totius ramuli longiores; radii secundarii normaliter (3)-4. Dactyli 2-3, quam radii penultimii multo breviores, 2 (raro 3)-cellulati; cellula superior parva acuta.

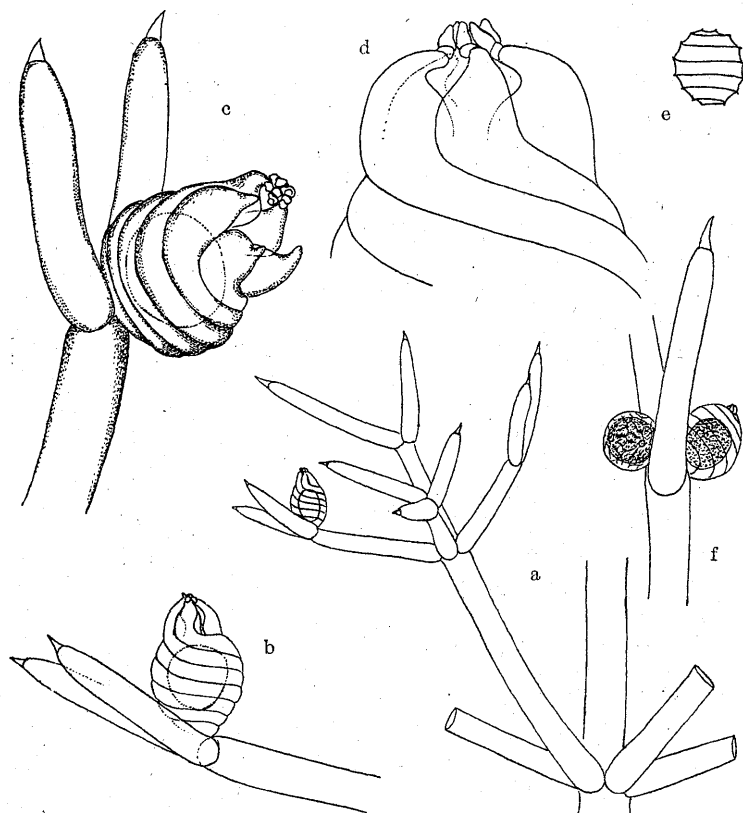


Fig. 4. *Nitella moniliformis* MORIOKA

a. Pars plantae ( $\times 15$ ); b-c. Pars ramulorum cum oogonio (b,  $\times 45$ ; c,  $\times 50$ ); d. Coronula oogonii ( $\times 100$ ); e. Oospora ( $\times 15$ ); f. Pars ramulorum cum oogonio et antheridio ( $\times 35$ ).

Verticilli fertiles parvi, plus minus congesti.

Gametangia ad nodos totos posita. Oogonia solitaria  $510-530\mu$  longa,  $310-340\mu$  lata; cellulae spirales 6-8, saepe in parte superiore liberae; coronula parva, ca.  $20\mu$  alta. Oospora fulva ad brunnea,  $280-300\mu$  longa,  $240-260\mu$  lata, 5-6 striis, membrana granulata, granulis irregulari moniliforme collocatis eis *N. vermiculatae* persimilibus.

Hab. in Hondo. Prov. Rikuzen: in lacu Nabirenuma (Ego ipse, no. 17, Jul. 20, 1939).

Planta endemica.

5) **Nitella spiciformis** MORIOKA, sp. nov.

Planta monoecia, 10–15 cm alta, smaragdina ad obscuri-viridis. Caulis potius robustus vel tenuis,  $460\text{--}510\mu$  diametro; internodia et ramuli vulgo aequilonga. Rami fertiles spiciformes ex apice vel axillari elongatae, vel sterilibus similes; verticilli fertiles quam steriles breviores et congestiores, vel similes, raro elongati. Ramuli verticilli 5–6, saepe quorum 1–2 simplices, vulgo 2–(raro 3–)furcati, ca.  $280\text{--}300\mu$  crassi; radii primarii totius longitudinis ramulorum ca.  $1/2$ ; radii secundarii 4–5, tantum quorum 1–2 iterum furcati; tertii 2–3; quaterni 3. Dactyli 2–3, semper 2-cellulati; cellula ultima parva acuta, ca.  $100\mu$  longa, saepe delapsa.

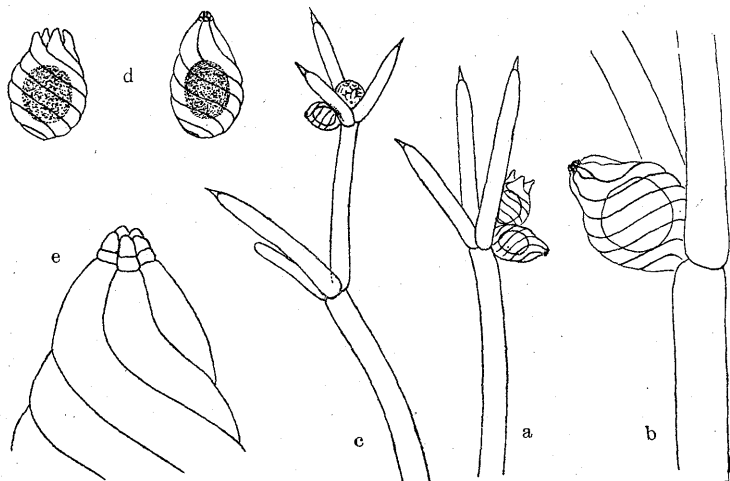


Fig. 5. *Nitella spiciformis* MORIOKA

a–b. Pars ramulorum cum oogoniis (a,  $\times 20$ ; b,  $\times 40$ ); c. Pars ramulorum cum oogonio et antheridio ( $\times 20$ ); d. Oogonia ( $\times 25$ ); e. Coronula oogonii ( $\times 120$ ).

Gametangia ad nodos omnes. Antheridia  $175\text{--}210\mu$  in diametro. Oogonia solitaria vel geminata, cellulis spiralibus 6–7, apices versus elongatis et bulbosis; coronula brevis, ca.  $30\mu$  alta, interdum delapsa; oospora purpureo-brunnea, ovalis ad subglobosa,  $260\text{--}280\mu$  longa,  $180\text{--}210\mu$  lata, striis 5–6, prominentibus et crassis, membrana irregulariter reticulata.

Hab. in Hondo. Tôkyô, in pelvi vadosa sponte nascit (Ego ipse, no. 31, Sept. 22, 1939).

Planta endemica.

6) **Nitella gracilens** MORIOKA, sp. nov.

Planta monoecia, 20–25 cm alta, claro-viridis. Caulis tenuis, 240–280 $\mu$  crassus; internodia quam ramuli 2–4-plo longiora. Verticilli fertiles sterilibus paulum breviores, sed non in capitula congesti, ad apicem sensim abbreviati et contracti. Ramuli verticillorum 6, recti, 2–3-plo furcati. Radii primarii quam dimidium totius ramuli longiores (in ramul. fertil.) vel breviores (in ramul. steril.); radii secundarii 3–4; tertii 3; dactyli plerumque 2, 2-cellulati; cellula ultima parva, acuta.

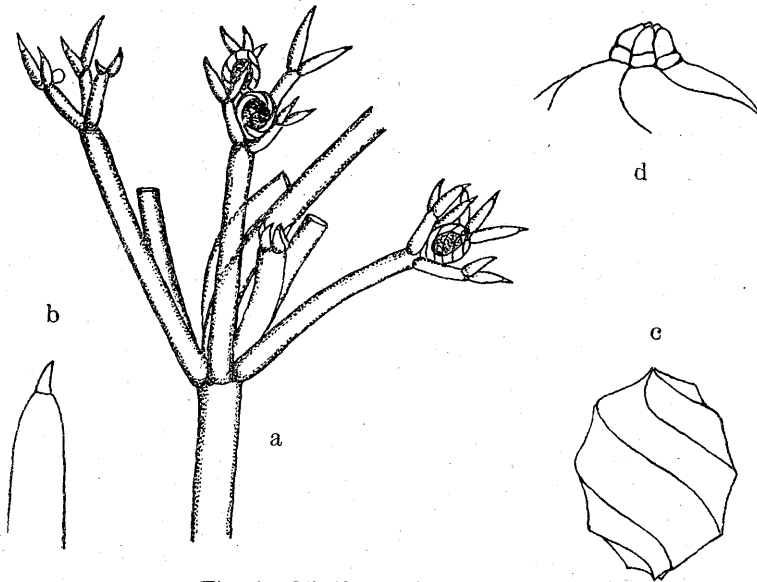


Fig. 6. *Nitella gracilens* MORIOKA

a. Pars plantae ( $\times 50$ ); b. Segmenta ultima ramulorum ( $\times 60$ ); c. Oospora ( $\times 100$ ); d. Coronula oogonii ( $\times 100$ ).

Gametangia ad nodos omnes. Oogonia solitaria vel raro geminata, 430–450 $\mu$  longa, 330–350 $\mu$  lata; cellulae spirales 4–6; coronula parva ca. 35 $\mu$  alta, cellulis superioribus paullo longioribus; oospora 260–280 $\mu$  longa, 230–250 $\mu$  lata, striis 4–5, paulum prominentibus, acutis; membrana fulva, fere levis.



Cum oosporis minus spiralibus, membrana leve ex *N. mucronata* et *N. gracilis* distat.

Hab. in Hondo. Prov. Sagami. in lacu Asinoko (Ego ipse, no. 21, Aug. 26, 1939).

Planta endemica.

7) **Nitella sublucens** ALLEN in Bull. Torr. Bot. Club. XXII, 70 (1895); MAKINO in Journ. Japan. Bot. VI, 373 et 396 (1929) eum icon.

*Nitella translucens* (non AG.) SAIDA in Bot. Mag. Tôkyô, I-1, 36 (1887).

Planta monoecia, ca. 20-30 cm longa. Caulis robustus, ca. 790-890 $\mu$  diametro in exsiccatis, internodia et ramuli steriles subaequilonga. Ramuli verticillorum sterilium quam fertilium multo longiores, tantum semel furcati; radii superiores 4, valde contracti, 190-240 $\mu$  longi, constanter 2-cellulati, cellulis superioribus parvis acuminatis. Verticilli fertilium in densa capitula terminalia vel axillaria congesti; ramuli verticillorum brevissimi, 2-(3)-furcati; radii ultimi vulgo 4, raro ad 6, 2-cellulati, cellula ultima brevior ad apicem acuminata.

Oogonia aggregata ad basin verticillorum fertilium et ad nodos primarios ramulorum; cellulae spirales 8-convolutis; coronula parva 35-43 $\mu$  alta et basi 70 $\mu$  lata. Oospora fulva globosa, 280-315 $\mu$  longa, 250-280 $\mu$  lata, striis 6-7, membrana punctata. Antheridia ca. 200 $\mu$  diametro.

Nom. Jap. *Renri-hurasukomo*.

Hab. in Hondo, Prov. Sagami: Kôzu (T. F. ALLEN, no. 16,—Syntype in Herb. Univ. Imp. Tokyo.). Prov. Musasi: Tôkyô (ex SAIDA in Bot. Mag. Tôkyô, I-1 (1887) 36). Kyûsyû in palde circa oppid. Isahaya (T. CHIBA, Oct. 10, 1938).

8) **Nitella musasiensis** MORIOKA, sp. nov.

Planta monoecia, 15-25 cm alta, viridis ad flavo-virens. Caulis potius robustus, 310-350 $\mu$  crasso; internodia ramulis paulo longiora vel aequilonga. Verticilli fertiles et steriles similes, ramulis 5-6, (2)-3-furcatis. Radii primarii totius longitudinis ramulorum 1/3-1/2, 180-236 $\mu$  diametro; radii secundarii 3-5; tertii 2-3; dactyli 2-3; inaequilongi, omnes vel quorum 1-2 abbreviati, constanter 2-cellulati, cellula ultima parva conica acuta, 30-50 $\mu$  longa et ad basin 20-25 $\mu$  lata.

Gametangia ad nodos omnes (ultimis exceptis), basi verticillorum sterilibus. Antheridia  $300-350\mu$  diametro, saepe laterales et breviter pedicellata. Oogonia solitaria vel 2-4 aggregata, si solitaria antheridio conjuncta, terminalia vel lateralia,  $450-510\mu$  longa,  $300-350\mu$  lata, non in mucro immersa; cellulae spirales 6-7-convolutae; coronula ca.  $50\mu$  alta et basi  $65\mu$  lata, cellulis

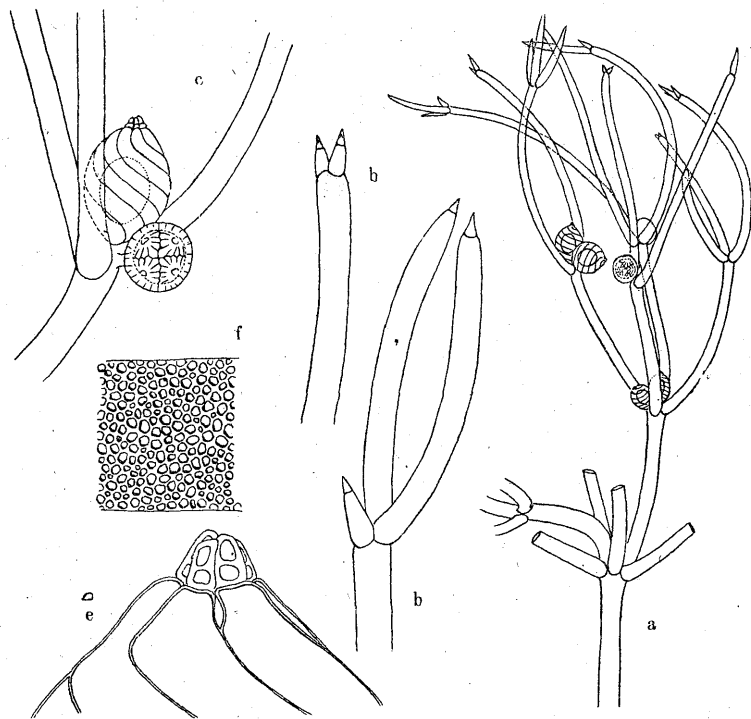


Fig. 7. *Nitella musasiensis* MORIOKA

a. Pars plantae ( $\times 10$ ); b. Segmenta ultima ramulorum ( $\times 35$ ); c. Pars ramulorum cum oogonio et antheridio ( $\times 30$ ); d. Coronula oogonii ( $\times 140$ ); f. Membrana oosporae ( $\times 350$ ).

superioribus paulum longioribus. Oospora pallide brunnea, subglobosa, striis 5-6,  $290-330\mu$  longa,  $240-290\mu$  lata; membrana dense foveolata.

*N. Burmanica* PAL. proxima sed exqua verticillo basali sterile, ramulis minus ramosis, cellulis spiralibus oosporae paucis, antheridiis majoribus distat.

Hab. in Hondo. Prov. Musasi: in fonte Sanbôike in septa Zyakuzii (Ego

ipse, no. 43, Oct. 7, 1939).

Planta endemica.

9) **Nitella fallosa** MORIOKA in NAKAI, Iconogr. Plant. Asiae Orient. III-4, 293, Tab. C II (1940).

Nom. Jap. *Teganuma-hurasukomo*.

Hab. in Hondo. Prov. Simousa: in lacu Teganuma (Ego ipse, no. 49, 55, Oct. 15; no. 69, Nov. 5, 1939).

Planta endemica.

10) **Nitella coreana** MORIOKA, sp. nov.

Planta monoecia, ramosa, 15–20 cm longa. Caulis robustus, ca. 750–820 $\mu$  crassus; internodia quam ramuli 1–1.5-plo longiora, 2.5–4 cm longa. Verticilli fertiles et steriles similes, ramulis 6–7, 3–4-furcatis. Radii primarii quam dimidium totius ramuli paulum breviores, ca. 8–10 mm longi, 435–560 $\mu$  diametro; radii secundarii 4–6; tertii 3–5; quaterni 3. Dactyli saepe inaequales, interdum paulum abbreviati, constanter 2-cellulati; cellula ultima parva acuminata, 80–100 $\mu$  longa.

Gametangia ad nodos omnes (exceptis ultimis). Antheridia 250–280 $\mu$  diametro. Oogonia solitaria vel 2–3 aggregata, 370–470 $\mu$  longa, 300–380 $\mu$  lata, in mucro non immersa(?); cellulae spirales 7–(8-) convolutae; coronula parva, 40–50 $\mu$  alta, cellula superiore paulum longiore. Oospora 280–330 $\mu$  longa, 245–300 $\mu$  lata, striis 6–7(?), tantum immatura vidi.

Inter *N. Glaziovii* et *N. fallosa* intermedia, a priori verticillis basalibus sterilibus, cellulis coronullarum abbreviatis, oosporis majoribus, et a posteriori ramis robustioribus, cellulis apicalibus dactyli robustis, oosporis minoribus abhoret.

Hab. in Korea. Prov. Keiki, in fossa circa Keizyô (M. SIMOKÔRIYAMA, Aug. 20, 1939).

Planta endemica.

11) **Nitella hyalina** (DC.) AGARDH, Syst. Alg., 126 (1824) ex. parte; KÜTZING, Phycol. gener., 319 (1843); Spec. Alg., 516 (1849); WAILMAN, Fam. Charac., 14 (1854); SYDOW, Europ. Charac., 31 (1882); A. BRAUN et

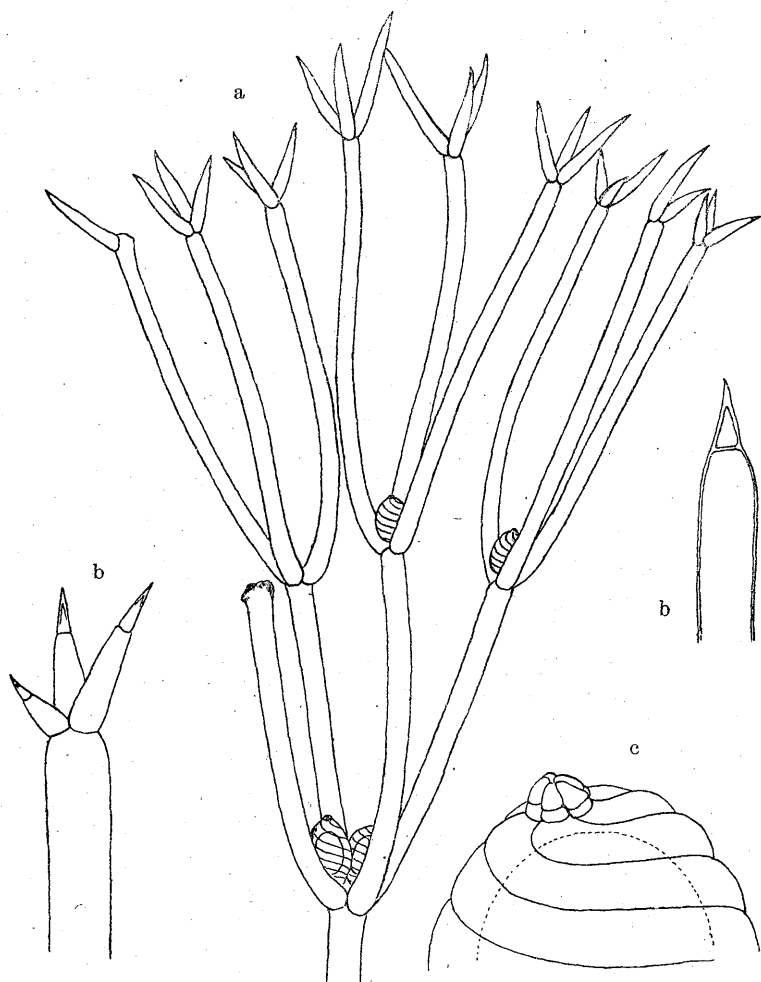


Fig. 8. *Nitella coreana* MORIOKA

a. Pars ramulorum cum oogoniis ( $\times 16$ ); b. Segmenta ultima ramulorum ( $\times 40$ );  
c. Coronula oogonii ( $\times 120$ ).

NORDST., Fragm. Monogr. Charac., 78 (1882); HAUCK in Hedwigia XXVII-1, 7 (1888); NORDST. in Hedwigia XXVII-7, 184 (1888); Alg. et Charac. 18 et 28 (1889); MIGULA in RABENH., Kryptog.-Fl. ed. 2, V, 190 (1890); Synop.

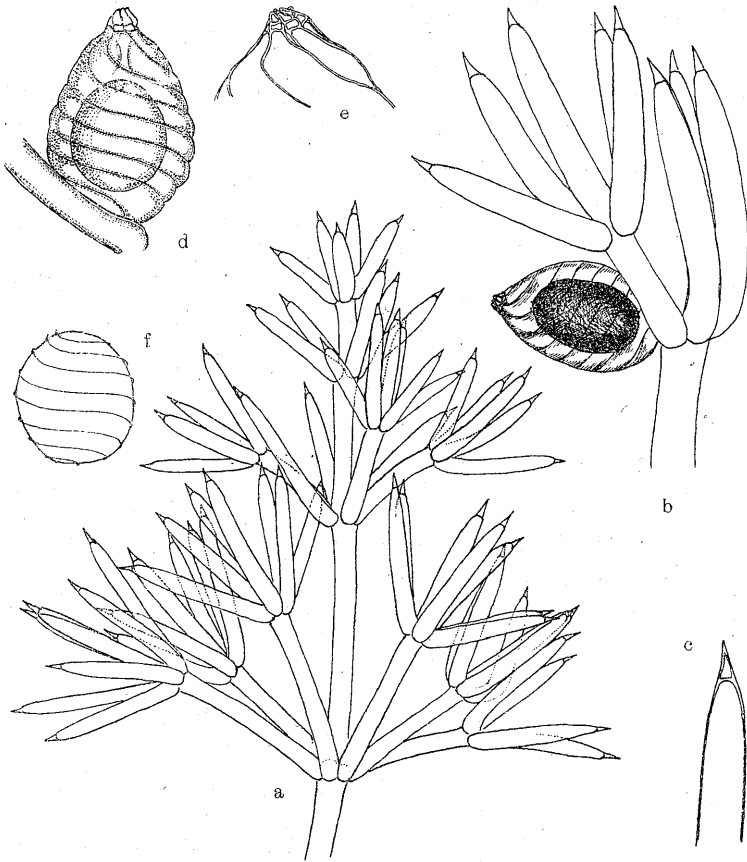


Fig. 9. *Nitella hyalina* (DC.) AGARDH

a. Pars plantae ( $\times 15$ ); b. Pars ramulorum cum oogonio ( $\times 40$ ); c. Segmenta ultima ramulorum ( $\times 50$ ); d. Oogonium ( $\times 50$ ); e. Corollula oogonii ( $\times 90$ ); f. Oospora ( $\times 60$ ).

Charac. Europ. 49 (1898); in MIGULA, Kryptog.-Fl. II-2, 277 (1909); in PASCHER, Süßwass.-Fl. Heft. 11, 218 (1925); in Hedwigia LXX, 214 (1930); GROVES in Journ. Linn. Soc. Bot. XLVI, 70 (1922), 369 (1924); AGHARKAR et KUNDU in Journ. Depart. Sc. new ser. I-1, 9, Pl. V (1937); VERDAM in Blumea III-1, 10 (1938).

*Chara hyalina* DC., Fl. Franc. V, 247 (1815) ex parte; DUBY, Bot. Gall.

I, 534 (1828); A. BRAUN in Flora I, 54 (1835).

Planta monoecia, 10–20 cm, alta, claro-viridis vel smaragdina, diaphana. Caulis tenuissimus, 320–410 $\mu$  diametro; internodia verticillos 2–4-plo superantia. Verticilli ramuli steriles normaliter 7–8, rigidi, ca. 0.8–1.5 cm longi, bis ad quarter furcati; radii primarii fere dimidium longitudinis totius ramulorum attingentes; radii secundarii 7–8 (rarius 9), quorum 1–2 interdum simplici; radii tertii 4–6 (raro 7); radii quaterni 5, quorum 1 saepe iterum in radiis 5 quintis furcati; verticilli omnes ramulos accessores portantes. Verticilli ramuli fertiles conferti, gloecephali, ca. 0.3–0.5 cm longi, 2–3-furcati; radiis primariis dimidio longitudinis ramulorum breviores; radii secundarii 7–8; radii quaterni vulgo 5. Dactyli ramulorum steriliis eis fertiliis similes, semper 2-sellulati; cellula inferior elongata, cellula ultima conica, acuminata, 70–90 $\mu$  longa, 32–36 $\mu$  lata.

Gametangia in omnibus nodis (primariis exceptis). Antheridia terminalia plerumque solitaria et sessilia, ca. 320–340 $\mu$  diametro. Oogonia sessilia, lateraliter, constanter 500–550 $\mu$  longa (coronula incl.) 325–390 $\mu$  lata, cellulis spiralibus (8)–9, coronula 40–60 $\mu$  alta ad basin ca. 70 $\mu$  lata; oosporae 300–360 $\mu$  longae, 250–280 $\mu$  latae, striis 7–8; membranae brunneae.

Hab. In Hondo. Sagami: in lacu Asinoko (Ego ipse, no. 24, Aug. 26, 1939). Prov. Simousa: in lacu Inbanuma (Ego ipse, no. 74, Nov. 12, 1939); in lacu Teganuma (ex MIGURA in Hedwigia LXX, 214, 1930). Prov. Hôki: in lacu Tôgôike (K. HISAUTI, Aug. 22, 1927). in cultu (Ego ipse, no. 9, Jul. 5, 1939).

Planta cosmopolitana.